

I. Listing of Claims

2004 AUG 19 PM 4:19

1. (Currently amended) A downflow condenser, comprising:
 - an upper horizontal manifold having a near end and a far end, separated by an impermeable upper baffle, an inlet connected to the near end of the upper horizontal manifold and an outlet connected to the far end of the upper horizontal manifold;
 - at least one first tube having a first end and a second end, connected at the first end to the near end of the upper manifold;
 - a lower horizontal manifold having an inner surface, a near end and a far end, the lower manifold defining a liquid communication path along extending the entire length of the lower manifold, the lower manifold being connected at the near end to the first end of at least one tube that is connected at the second end to the near end of the upper horizontal manifold, wherein the near end of the upper manifold, the at least one first tube and the near end of the lower manifold are in a vertical relationship, and comprise a first pass;
 - a permeable partial lower baffle in the lower manifold, separating the near end and the far end of the lower manifold, the partial lower baffle is secured to the lower manifold along the top and two sides and sized to create a gap between the bottom of the partial lower baffle and the inner surface of the lower horizontal manifold, the lower baffle including portions defining a liquid only passageway that only allows liquid to enter the second pass;
 - at least one second tube having a first end connected to the far end of the lower manifold, and a second end connected to the far end of the upper manifold, wherein the lower manifold, the at least one second tube and the upper manifold are in a vertical relationship, and the far end of the lower manifold, the at least one

second tube and the far end of the upper manifold comprise a second pass,

the upper manifold being oriented relative to the lower manifold such that fluid entering the upper manifold and the at least one first tube cools and condenses and flows by gravity into the lower manifold, and the liquid enters the second pass and leaves through the far end of the upper manifold.

2. (Cancelled)

3. (Original) The condenser of Claim 1, wherein the lower baffle is selected from the group consisting of a depressed portion, a leak path, and a bypass baffle.

4. (Original) The condenser of Claim 1, further comprising a dryer inside the condenser.

5. (Original) The condenser of Claim 1, further comprising extended surfaces on the exterior of a tube selected from the group consisting of the at least one first tube and the at least one second tube.

6. (Original) The condenser of Claim 1, wherein a nondiscrete refrigerant tube (NRT) comprises at least one pass of the condenser

7. (Withdrawn) A downflow condenser, comprising:

an upper horizontal manifold having a near end, a middle portion, and a far end, the near end and the middle portion separated by a first upper baffle, and the middle portion and the far end separated by a second upper baffle;

2004 AUG 19 PM 4:19

DIVISION

at least one first tube having a first end and a second end, connected at the first end to the near end of the upper manifold;

a lower horizontal manifold having a near end, a middle portion, and a far end, the near end and the middle portion separated by a first lower baffle, and the middle portion and the far end separated by a second lower baffle, wherein the lower manifold is connected at the near end to the at least one tube at the second end, and wherein the near end of the upper manifold, the at least one first tube and the near end of the lower manifold are a first pass, wherein fluid entering the first pass and the at least one first tube cools and condenses into the lower manifold;

at least one second tube having a first end connected to the near end of the lower manifold, and having a second end connected to the middle portion of the upper manifold, wherein the lower manifold, the at least one second tube and the upper manifold are a second pass, wherein liquid condenses in the second pass and at least partially falls into the lower manifold, and wherein the first lower baffle passes only liquid to the middle portion of the lower manifold;

at least one third tube having a first end and a second end, connected at the first end to the middle portion of the upper manifold and the second end to the middle portion of the lower manifold, wherein the middle portion of the upper manifold, the at least one third tube, and the middle portion of the lower manifold comprise a third pass;

at least one fourth tube having a first end and a second end, connected at the first end to the far end of the lower manifold and at the second end to the far end of the upper manifold, wherein the far end of the lower manifold, the at least one fourth tube, and the far end of the upper manifold comprise a fourth pass;

wherein the second lower baffle passes only liquid to the far end of the lower manifold, and the liquid enters the fourth pass and leaves through the far end of the upper manifold, and wherein the upper manifold, the tubes, and the lower manifold are in a vertical relationship.

8. (Withdrawn) The condenser of Claim 7, further comprising extended surfaces on the exterior of at least one tube selected from the group consisting of the first tube, the second tube, the third tube and the fourth tube.

9. (Withdrawn) The condenser of Claim 7, wherein the first and the second lower baffles are selected from the group consisting of a depressed portion, a leak path, and a bypass baffle.

10. (Withdrawn) The condenser of Claim 7, further comprising a dryer inside the condenser.

11. (Withdrawn) The condenser of Claim 7, wherein any pass comprises a nondiscrete refrigerant tube (NRT).

12. (Withdrawn) The condenser of Claim 7, wherein at least some of the liquid condensed in the first pass is entrained into the second pass.

13. (Withdrawn) The condenser of Claim 7, wherein all the fluid from the first pass enters the second pass, and the first lower baffle passes no fluid to the middle portion of the lower manifold.

2004 AUG 19 PM 4: 19

14. (Cancelled)

15. (Cancelled)

16. (Cancelled)

17. (Cancelled)

18. (Cancelled)

19. (Cancelled)

20. (Withdrawn) The condenser of Claim 1, wherein the lower baffle comprises a depressed portion, a leak path, and a bypass baffle.